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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE•

MARCH 16, 1935

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The Weekly Summary of Current Science

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Edited by WATSON DAVIS

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DO YOU KNOW?

How deep in the sea whales can dive has not yet been discovered.

There is no reason to believe that the ocean has ever frozen solid since life appeared on earth, says a geologist.

It has been estimated that about one person in 3,000,000 may have the experience of seeing a meteorite fall to earth.

Not all butterflies are short-lived: some live almost a year in the adult stage, though they hibernate part of this time.

When cotton plants fail to set a crop of bolls, in bad cotton years, farmers have been blaming the weather; now it turns out that the cotton flea hopper, a tiny insect, is the destructive agent.

State socialism is far from new—the Incas of Peru ruled by an elaborate interlocking system of governmental control, by which each Indian in the empire had his life planned for him in great detail.

Red hair is more common in Scotland than anywhere else in the world.

London, like Washington, has been troubled by starlings that roost in hordes at night on the ledges of down-town buildings.

Milan, Italy, has a new indoor swimming pool which features the latest ideas in pool construction, and has seats for 3,000 spectators.

New York's Central Park has a new "picture book zoo," in which the animal cages are labeled with picture book signs such as "E is for Elephant."

The Bureau of Fisheries says that any properly prepared small fish of the herring family can be called a sardine—including pilchard, sprat, and bristling.

Vision of children as young as three years can be tested by a technique developed some years ago by the National Society for the Prevention of Blindness, and consisting of the letter "E" in various positions.

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METEOROLOGY

Temperature and Humidity Recorded by Same Instrument

NEXT summer, when some gaffer pulls that old one about "not the heat but the humidity," there will be scientific means of accurately checking him up, thanks to a new instrument invented by Athelstan F. Spilhaus of the Massachusetts Institute of Technology. (*Bulletin Am. Meteorological Society,* Feb. 23).

Mr. Spilhaus calls his device an "air mass indicator," but for everyday purposes it might well be christened a "comfortometer." It combines a thermometer to measure the temperature with a hygrometer to measure the humidity of the air, in such a way that a single pointer can tell you whether you have a right to be uncomfortable or not.

The new instrument was designed to face the universally known fact that humidity does have a lot to do with how hot or how cold it feels. As everybody has experienced many times, a hot, dry day is more tolerable than a hot, muggy one, because if there is little moisture in the air, perspiration evaporates readily, producing a cooling effect. A straight thermometer reading therefore means little, but combined properly with a humidity reading it has significance.

Pointer and Dial Both Move

Mr. Spilhaus has succeeded in doing this by having a pointer, which indicates humidity, move over a dial which itself moves to indicate temperature. The dial is of a rather thick crescent shape, and is pivoted at one end. Attached to it is a strip made of two metals that expand unequally when heated, and must therefore bend, thus causing the dial to move up and down. The humidity-indicating pointer is attached to hairs that lengthen in moist air and shorten in dry, causing it to travel back and forth over the dial.

There are two kinds of dials. One, for scientists, is marked with symbols understood by initiates in the mysteries of meteorology. The other, for everybody's use, bears such everyday terms as raw, keen, damp, dry, muggy, scorching, heat prostration. There is also a blessed "island of comfort" in the middle—though it looks discouragingly small as compared with the "sea of troubles" with which it is surrounded. However, at least for indoor use in really modern buildings, the air-conditioning engineer can see to it that the pointer does not stray off that "island."

The instrument can also be used as an ice warning indicator for aircraft. Ice formation on the wings and other surfaces of airplanes is a serious problem, but hitherto pilots have had no instrument to check by, other than a thermometer. But subfreezing temperatures are not dangerous unless the accompanying relative humidity is nearly 100 per cent. With an air mass indicator substituted for the thermometer, the pilot can tell at a glance whether it is time to begin worrying about ice on the wings.

Mr. Spilhaus emphasizes the fact that his instrument is not intended for use in forecasting weather. It is designed solely to give a more accurate and significant reading of the weather of right now.

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"COMFORTOMETER"

A new weather-reading instrument on which a moving pointer, gliding over a dial that also moves, tells what atmospheric conditions are in everyday terms of human comfort—or discomfort. Its inventor, Athelstan F. Spilhaus of the Massachusetts Institute of Technology, holds the instrument, which indicates both heat and humidity. The insert shows close-up of dial, giving positions for raw, keen, dry and damp weather.

ASTRONOMY

Brightness of Meteors Studied by Harvard

WHETHER the brightness of a meteor is due to the size of the shooting star as it plunges through our atmosphere or to the speed with which it is travelling, should be known shortly as a result of investigations now in progress at the Harvard College Astronomical Observatory.

Observations are to be made under the direction of Fletcher Watson, assistant in astronomy, of each of the meteor showers that occur at intervals throughout the year. The principal ones occur approximately on April 22, May 25, July 29, Aug. 12, Nov. 17, and Dec. 12.

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PHYSICS

Science Fights Crime With New Inventions

FROM a prison in Illinois, a radio laboratory in Connecticut and a lock firm in Chicago come the newest aids in crime prevention and detection.

Gun smuggling at Illinois State Penitentiary has reached a new low since the latest magnetic detector has been installed to "search" convicts and visitors alike as they pass through normal-looking but highly sensitive doorways.

All manner of metals like iron, steel or nickel which have magnetic properties change the invisible but ever present magnetic field of the concealed apparatus and ring a warning bell if present. Two installations are now being tested; one in a special doorway through which all visitors must pass and a second within a commonplace-looking table on which all packages are laid.

Caught a Buttonhook

First victim of the device was Thaddeus Johnson, negro trusty who "happened to have" a buttonhook within the lining of his jacket.

The Paul W. Koch Company of Chicago, who make the device, point out other applications of the apparatus. Candy, for example, can be inspected at the factory for the rare possibility of a bit of metal inside a piece. Expensive lawsuits resulting from people who claim to have broken teeth in this way may be headed off at the source.

Other uses, it is claimed, might include the device as a signal of the approach of an automobile at a filling station. Or an estate might be guarded by detecting a motor car coming up the private highway. Similarly the lighting system of a roadway sign could be controlled by the mechanism. Late at night when automobile travel is infrequent the illumination of the sign would be off. As a motor car approached, however, its magnetic presence would turn on the lighting system until it passed.

The radio home-guarding device is an application of what was once a nuisance to the early users of radio sets. Remember how a program would often fade when the hand or body came near the multitude of dials? The fading was caused by the electrical capacity of the body which changed the tuning characteristics of the set.

Using this principle, radio engineers at New Haven, Conn., have just developed an "electrical curtain" which can create a sensitive zone around a home, detect the presence of any unwanted intruders and thus prevent crimes of the character of the Lindbergh kidnaping.

The heart of this kidnap alarm system is a radio set which, when turned on, creates a radio field around its antennae, or aerials. This field is sensitive to the approach of the human body.

When a person gets within a certain distance of the aerials—and that distance can be regulated within a certain margin, a circuit is broken, an alarm sounds, and flood lights make the yard and walls of the house as bright as day.

The aerials go from the central mechanism to all of the apertures to be protected. They are passed around the sills of windows and around doorways.

Two of the biggest problems of the inventors were overcoming the effects of lightning and rain, but they claim they have done it. They worked out the differences between the disturbances caused by rain, lightning, and the human body, and adjusted their device so that only the human body would affect it. A St. Bernard or Great Dane dog might, however, set the thing off.

Methods were developed to hide the controlling switch, to make it possible for occupants of a house to open their windows without disturbing the alarm, and if home owners fear their power lines might be cut, the system will work on an auxiliary storage battery.

Insurable Lock

Latest of the burglar-proof locks comes from Chicago, where tests at the Underwriters Laboratories and the Cook County Jail disclose that the lock is also drill, force, and grip-proof. Moreover, its key is said to be copy-proof. Lloyd's of London will give you a $100 insurance policy with one.

The lock is four times as complicated as ordinary locks, for its key has four wavy edges to activate four sets of tumblers instead of one as in ordinary locks.

Every purchaser of the lock is registered and only by forwarding a registry card can a duplicate key be obtained.

Automobile manufacturers are investigating the new lock possibilities to prevent auto thefts. Criminals easily

PICK-PROOF LOCK

Officials of Chicago's Cook County Jail watch Ed Stanley, inmate, pick sample locks with a professional "jigger gun." A new lock just invented and insured by Lloyd's of London for $100 was the only one which stumped Cook County's lock-picking experts. Tested by the Underwriters Laboratories, the new lock is found to be drill-proof, grip-proof, force-proof and has a key which is copy-proof.

obtain code numbers and get duplicate keys on motor cars. A copy-proof lock whose keys can be obtained from a central manufacturer after scrutiny of credentials should, it is hoped, reduce crime. While figures vary, police officials have good reason to feel that a majority of burglaries are committed with the aid of stolen cars.

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INVENTION

Razor Blade That Lasts Six Months Shown

A RAZOR blade that lasts six months, a piano an invalid can play in bed and radio for the deaf are the features of this year's British Industries Fair now in progress at London's two largest exhibition arenas—"Olympia" and the "White City."

The razor blade which lasts six months is exhibited by an American, Alfred Schmidt of New York City. Its blade consists of five feet of stainless steel ribbon wound up like a watch spring. A twist of the knob brings a new section into place for shaving.

The "invalid" piano makes it possible for a bedridden person to play the instrument providing he or she can be propped up just a little. Secret of the device is a highly-extensible and adaptable keyboard which comes out over the bed to the hands of the patient.

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PHYSICS

Scientists May be Searching Vainly for Negative Proton

ALTHOUGH perhaps vainly, because they live in the wrong part of the universe, scientists are hunting for another fundamental particle—the negative proton—out of which atoms, and hence all matter, may be constructed. To explain and simplify present concepts of how the cores of atoms are composed which need protons, electrons and neutrons to fill the picture, scientists hope to find the negatively charged counterpart of the positively charged protons.

This, in substance, is the conclusion of Prof. George Gamow, world-famous Russian scientist, now visiting professor of theoretical physics at George Washington University, Washington, D. C.

Dr. Gamow who first predicted the levels of energy now found within the atom nucleus also predicted such negative protons still to be found.

Asked at the meeting of the Chemical Society of Washington why the negative proton is still unfound in spite of sensitive experiments to find it, Dr. Gamow said:

"The search for the negative proton is difficult because man and the planet on which he lives may be in the wrong part of the universe. We live in a world where protons and electrons exist. Yet if the universe as a whole is electrically neutral there must be other regions and worlds where the opposite is true; regions where negative protons and the newly-discovered positrons make up atoms.

"One can think," he continued, "of the splitting of some giant star into two parts. One component might be like our sun and its planet earth. The other half might have charges of the opposite sign. The first part would be a region like that found on earth where protons and electrons predominate. The latter might be the negative proton world."

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COSMOLOGY

Man Just an Accident Says Sir Arthur Eddington

THE universe was apparently designed for other purposes than man, Sir Arthur Eddington, Cambridge astronomer, concludes in his latest book (*New Pathways in Science*—Cambridge U. Press).

Admitting that the scientific picture of the universe misses the point in that it does not include the senses, beauty, morality, the presence of God, etc., Sir Arthur nevertheless emphasizes the idea that man is an accident.

Matter normally collects in big masses with excessively high temperatures, but, he said, "by a trifling hitch not of serious consequence in the development of the universe some lumps of matter of the wrong size have occasionally been formed."

These lumps, one of which is the earth, lack "the purifying protection of intense heat or equally efficacious cold of space."

"Man is one of the gruesome results of this occasional failure of antiseptic precautions," Sir Arthur said.

The universe will end in "one stupendous broadcast" and will come when all matter is dissolved.

"About every 1500 million years this ball of radio waves," Sir Arthur explained, "will double its diameter and will go on expanding forever. I may describe the end of the physical world as one stupendous broadcast."

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PSYCHOLOGY

Long Radio Blurbs Hard to Remember

HOPE for radio listeners who are bored by long detailed advertising announcements comes in the report of Drs. F. H. Lumley and C. H. Calhoon, of Ohio State University, that short radio talks with few ideas are remembered best.

Long lists of addresses, prices, telephone numbers and facts about merchandise cannot be remembered by the average listener and speaking slowly will not help much to "put them over," experiments conducted with 946 grade and high school children revealed. The results are disclosed in the current issue of the *Journal of Applied Psychology*.

Most familiar words were used in the tests, and memory was tested immediately after presentation. The average number recalled by each child ranged from 2.1 words for third graders to 4.7 for high school seniors. They remembered the same number of words from a list of six and from a list of ten, it was found.

If radio messages are to be remembered, it appears to be more important for the advertiser to limit the number of ideas included than it is for the announcer to speak slowly. Slow speech seemed to make memory easier for the

seventh and eighth grade pupils but not for younger or older listeners.

Numbers are more easily remembered than words. The pupil who remembers fewer than four words will recall six numbers from a list of equal length. But the broadcaster is reminded that the upper limit for number memory span is not much beyond seven when he is tempted to repeat long lists of telephone numbers, street addresses, and prices.

Teachers are advised not to rely entirely on the pupils' hearing to fix the radio lesson in memory. She should supplement the speech by writing the ideas presented on the blackboard, thus stimulating both ears and eyes.

The experiment was conducted under the auspices of the Payne Fund for the Study of Radio Education.

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PHYSICS

Leningrad Institute Celebrates 50th Anniversary

See Front Cover

THE cover illustration of the SCIENCE NEWS LETTER this week shows a test discharge of the great copper gaps in the high voltage laboratory of the Electrotechnical Institute, Leningrad, U. S. S. R., which recently celebrated its fiftieth anniversary.

In the test, 1,200,000 volt sparks are jumping.

Research at this institution is primarily directed toward the practical aspects of electricity. Latest of the research projects has been an investigation of means for the protection of the high-powered transmission lines from the hydroelectric generating stations in the Ural Mountains.

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White men seem to have first encountered the American buffalo when Cortez and his followers visited the menagerie of Emperor Montezuma in Mexico, in 1521.

NUTRITION

New Government Charts Indicate Diet Requirements

THIS white rat had vitamin D. This white rat had none—

No, the U. S. Bureau of Home Economics has not yet suggested that the nursery rhyme piggies be revised, not even to teach children to drink their milk and eat the nice vegetables.

But a series of picture charts, just issued by the Bureau, drives home its lesson of dreadful consequences of unbalanced diet, by the haunting, effective repetition of a refrain reminiscent of the piggies. The charts are not for children to pore over. The lesson is intended for adults, and boys and girls old enough to recite the vitamin alphabet, with definitions, in home economics study courses.

"Rats grow rapidly and mature early," explain the Government nutrition scientists in the new picture-lesson series. "They eat the same kinds of food we do and show the same effects of good and bad diet."

"This rat had no vitamin D; note the short body and bowlegs—typical signs of rickets," runs the warning beneath a pathetic little white rat portrait. The 20-week-old rat actually has such weak forelegs that the front joints curve down and rest on the ground. His partner who "had plenty of vitamin D" has good, strong bones. And below is pictured an array of foods that make the difference to bones and teeth.

Besides showing what vitamins do for muscles, bones, appetite, and general well being, the lessons go on to show the work of iron, calcium, and phosphorus in building and repairing body tissues.

Twin rats six months old sum up the demonstration on growth. One young rat ate only meat, potato, bread, and butter, and he weighed just 89 grams. How he felt when he woke up in the morning or after a hard day's play in his cage, nobody knows. That is the one drawback to experimenting with rats. They can't describe their symptoms with all the convincing eloquence of humans who feel terrible. But on visible evidence the little white rat who ate a traditional working man's diet was a runt. Below poses his twin in all his well fed glory. "This rat ate plenty of milk and vegetables, besides meat, potato, bread, and butter. He weighed 194 grams."

The Government nutrition scientists who patiently photographed their rat charges for this new set of food lessons, have one worry. They expect to be bombarded with requests from the public for free copies of their work. But the charts, they explain emphatically, will have to be sold, for a moderate sum, (50 cents) via the government's publisher, the Superintendent of Documents.

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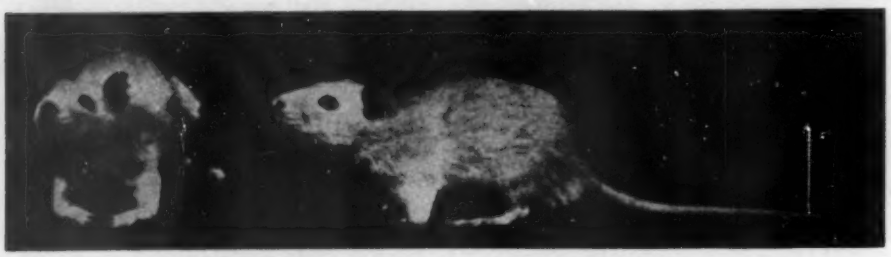

THIS LITTLE RAT HAD NO VITAMIN D

The runty body and bowlegs are typical signs of rickets. The little animal has his mission in life, however; he strikingly points a moral on one of the government's new nutrition charts.

ARCHAEOLOGY

Russians Explore Caucasus Hills

RUSSIAN archaeologists exploring in the Caucasus hills have discovered there for the first time relics of ancient people buried layer upon layer.

The excavations, still to be continued, have already uncovered traces of culture from the fifth century A. D. back to the Neolithic or New Stone Age. Judging by ancient Greek and Roman writings, this region, the low country of Kolkhida, in Western Georgia, was once densely populated.

The site being unearthed is at the old city of Kvalony. About sixteen inches underground lay iron implements, bones of animals, and ceramic fragments dating from about the fifth century A. D. Lower were bronze arrow and lance heads, and still deeper were remains of the Copper Age, chiefly pottery.

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THESE ARE FOODS THAT HAVE VITAMIN D

Here are the butter and cream and oil that prevent the rickets that afflicts the rat that is deprived of vitamin D. This picture is one of a series of graphic representations issued by the U. S. Bureau of Home Economics to illustrate important facts regarding diet.

ETHNOLOGY

Red Man and Irishman Have Problems in Common

RED MAN and Irishman—what problems have they in common?

Plenty. And the experiences of Ireland in the past few decades offer strong hope to the Indian in his efforts to "come back." So the situation is interpreted by Commissioner of Indian Affairs John Collier, after conferring with Ireland's famous man of letters and statecraft, George Russell, better known by his cryptic nickname "AE."

AE, one of the pioneers of the "Irish movement" and a worker there for 30 years, met with the Indian Office staff in Washington a short time ago. He told of the despair and apathy into which Ireland drifted, over half a century ago, a state so nearly universal there that Charles Darwin actually wrote down the conclusion that the Irish stock was, or had come to be, biologically incapable, so that it were better to eliminate it from the racial bloodstream.

But 45 years ago, Ireland's population began to increase, not diminish. And, by coincidence, it seemed, renewed will to live stirred in the people. They looked back toward Ireland's ancient glories and sought to revive the Gaelic language and arts and cultural values. They looked forward at the same time, and worked out a program of rural rehabilitation and cooperative self-help.

"The Irish revival took its rise amid a people dispossessed of the land even as our Indians have been dispossessed," said Commissioner Collier, citing close parallels with the Indian situation, brought out from AE's story of Ireland's comeback.

"The identical movement projected a land-acquisition plan for the Irish peasantry, and this plan was governmental. Essentially, it was a restoration of the landed estates to the people. The successful use of the land, and the building of a happy and, definitely, a socially creative life upon the land, was the foundation concept of the Plunkett-Russell effort.

"The planning of resources was one evident need, and to a large extent this total survey and planning of Irish resources, of their possible exploitation, and of the manner of so exploiting them that the resources shall not exploit the people, has been achieved. Of course, its theoretical achievement has become fully embodied only in some of the rural areas, as yet; but Irish national policy takes it into account."

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METEOROLOGY

Western Dust Reaches Ocean for Second Time

FOR THE second time in American weather history, a dust storm from the West has reached the sea. Charles L. Mitchell, of the U. S. Weather Bureau at Washington, D. C., informed Science Service that the dust, first reported from Amarillo, Texas, and Oklahoma City, Okla., on Monday, March 4, was observed Tuesday in Nashville, Tenn., and on Wednesday evening reached Washington.

It was found high in the air as well as along the ground. A Weather Bureau plane observer found dust at about a mile altitude at Nashville, and a commercial pilot reported dust at nearly twice that height between Pittsburgh and Washington.

Dust storms are rather commonplace afflictions in the West, but it was not until mid-April of 1934 that Kansas and Wyoming soil were blown into the Atlantic Ocean. Responsible factors were first the unprecedented drought, the worst in American history, and second the destruction of the age-old sod cover in parts of the West, plowed up for wheat during and after the War and never restored to its dust-checking mantle of grass.

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RADIO

Radiophone Used to Send Medical Advice to Ship

FIRST use by the federal health authorities of the radiophone to give medical advice to a ship at sea has just been reported to Surgeon General Hugh S. Cumming, U. S. Public Health Service.

The federal health service has used the radio to give medical care to vessels at sea for the past fourteen years, but this time the master of the S. S. Exeter when about 100 miles out of Halifax, Nova Scotia, spoke over the radiophone to Dr. A. D. Foster, U. S. P. H. S., medical director of the U. S. Marine Hospital at Chelsea, Mass.

The ship's engineer had received a severe cut on his forearm by broken glass and was having a rather profuse hemorrhage from an artery. Dr. Foster told the ship's master how to apply a tourniquet around the arm above the elbow to stop the bleeding.

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CLIMATOLOGY

Winter of 1934-35 Warmer Than Normal

WINTER, just ended, was warmer than usual over almost the entire United States, J. B. Kincer of the U. S. Weather Bureau announced after an examination of the season's weather data. Between 85 and 90 per cent. of the country had super-normal temperatures for the months of December, January and February. Lower-than-average temperatures ruled in a limited area in the Northeast, and along a narrow Atlantic coast strip the records show a just-about-average winter. This warm-winter trend has now lasted for nearly twenty years.

February in particular was warmer and drier than average, Mr. Kincer states. This was especially the case in the Northwest. For example, at Bismarck, N. D., only one February in the past sixty years has been warmer than the month just closed. Eleven of the past twelve Februaries in that region have been warmer than normal, and the average temperature for all twelve has been ten degrees above the normal for the month.

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BOTANY

Orchids Picked From Trees By Botanists in Canoe

ORCHID collecting among the treetops of a Panama tropical jungle, by botanists standing in the bow of a native canoe, was the dreamlike but none the less actual experience of a scientific expedition from Washington University and the Missouri Botanical Garden, under the leadership of Dr. Carroll W. Dodge. Not only did the venturesome botanists paddle their craft up among the treetops, but the road they followed was the ancient Spanish camino real, or King's highway, over which once trotted caravans of horses and donkeys bearing the treasures of Peru.

The apparently upside-down adventure was made possible by the flooding of a large area of primal jungle with water backed up by the new 170-foot dam at Alalhuela, forming Madden Lake, to control floods and supply power and lockage water to the Canal.

Areas formerly reached only by arduous trips on paths cut through the dense jungle were easily explored in canoes. Since the expedition reached the lake before it was filled to its final level, regions now completely under water were studied as well as lower levels in the forests whose tree tops are still exposed. The party had the opportunity, also, to study the plants of the upper portion of the forest before the trees died. So far as Dr. Dodge knows, this is the first time that such a chance has ever been offered to botanists anywhere.

More than 5,000 plants, representing about 1800 species, besides a large number of living lichens, orchids, and tree-dwelling relatives of the pineapple, were added to the herbarium of the Missouri Botanical Garden in St. Louis and the collections of the Garden's tropical station at Balboa.

The expeditions are being financed partly by the Washington University Science Research Fund, established by the Rockefeller Foundation, and partly by the Missouri Botanical Garden.

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ASTRONOMY

Metal-Plated Insect Enshrined in Telescope

A TINY insect, that probably could not see more than a fraction of an inch when alive, is now permanently enshrined in metal on the newly aluminized face of the great 100-inch mirror of the Mt. Wilson telescope, through which astronomers peer quintillions of miles into space.

During the recent evaporation resurfacing of the great mirror, a tiny insect flew into the vacuum chamber of the apparatus; it died and received an aluminum coating in which, like the gold-plated scarabs of the ancient Egyptians tombs, it will be encased for years. The defect caused by the tiny insect tragedy, however, will do no damage to the usefulness of the great telescope.

When the 100-inch mirror was taken from the telescope mounting for its new aluminum coating by Dr. John Strong of California Institute of Technology, it was the first time the mirror had been removed from its metal framework, or "cell," since it was installed.

Astronomers have found out that aluminum has much better reflecting characteristics than silver, and when applied by Dr. Strong's technique is much more permanent.

Science News Letter, March 16, 1935

IN SCIE

NUTRITION

Faulty Diet Hurts False Teeth as Well as Nature's

FALSE teeth as well as the set provided by nature are affected by diet, in the opinion of Dr. Russell Tench, former professor of prosthetic dentistry at New York University.

A faulty diet which damages the natural teeth also may change the shape of the ridges of the mouth so that perfectly fitted "store teeth" become loosened and misfits within three weeks.

When the natural teeth become so damaged that they must be extracted, it is due to conditions within the body brought on by faulty diet, and removing the teeth does not remove the condition of poor nourishment, Dr. Tench pointed out. The rest of the mouth continues to be affected by the original condition that caused the loss of teeth. As a result, artificial teeth cannot be made to fit properly.

This opinion, Dr. Tench said, is based on his observations in the course of routine practice as a dentist.

Science News Letter, March 16, 1935

PUBLIC HEALTH

Widespread Scarlet Fever Increase Reported

A NEW high figure for scarlet fever cases has been reached in the present widespread outbreak. A total of almost 8,000 new cases were reported by state health officers to the U. S. Public Health Service at Washington, D. C., during the week of March 2, latest for which figures are available.

More new cases are being reported than at any time in the past seven years, the federal health authorities state. The present increase throughout the nation coincides with the usual seasonal rise and will therefore probably continue to the end of the month, as the peak of the seasonal rise in scarlet fever cases usually is reached by the end of March or the first week in April.

Science News Letter, March 16, 1935

FIELDS

PALEONTOLOGY

'Possums Not Good Hunting 35,000,000 Years Ago

'POSSUM tracks 35,000,000 years old have lately been studied by C. Lewis Gazin, paleontologist of the Smithsonian Institution. They were printed on a slab of shale that once was soft mud, away back when the Colorado mountains were flat lowland.

The opossums of that ancient species, however, would not have been good hunting—except maybe for tabby cats—for they were no bigger than small mice. There are still mouse-sized opossums in the world, in tropical South America; although these are not regarded as descendants from the "mouse-'possums" of the ancient Colorado rocks.

Science News Letter, March 16, 1935

ECOLOGY

Drought Effects Severe On Prairie Trees

DROUGHT, that blasted pasture and crop lands in the West last summer, took toll of the prairie groves of trees also. Careful observations made last summer on the trees that form natural outposts bordering on the great grasslands have been made available to Science Service by Dr. J. E. Weaver, professor of ecology at the University of Nebraska. Few of these trees and shrubs were killed outright, but the varying degrees of injury suffered by the different species are considered worthy of study in connection with plans for the Great Plains shelterbelt, now under preliminary experiment to the west of Lincoln, Nebr.

Along the valleys, where the soil moisture is normally most abundant and evaporation rates somewhat lower than those obtaining on the uplands, there was nevertheless a great deal of drought injury. Dr. Weaver and his associates noted willows and wild cherries nearly leafless in the heat. The leaves of box-elder were wilted and dried, and those of the silver maple were "discolored as though by frost."

Ash and elm, among the most favored trees for shelterbelt purposes, Dr. Weaver records as having "wilted crowns"; the ash, especially, was "half dried and brown." Of the elms, "the scorched leaves did not turn brown or bleach white as did those of other species, but took on a bluish-gray color and soon fell to the ground."

On the other hand, black walnut "was scarcely affected, perhaps on account of its excellent root system; nor were trees of this species found on even dried sites injured. Hackberry appeared in fair shape."

A contrast between two associated species in the same environment is recorded by Dr. Weaver: "In the bordering belt of linden and red oak on a steep north slope, one-third to one-half of the leaves of the shallow-rooted linden were brownish-yellow and functionless; many had fallen to the ground. The more deeply-rooted red oak had shown as yet no permanent injury although the portions of the crown most exposed to the sun were wilted in early morning."

In the bur oak forest that covered the slopes of the hills, even greater drought prevailed. From a vantage point on a ridge, one could clearly see that many of their tops had been badly scorched and that the leaves were dried.

Most convincing to many people, no doubt, will be the notation that the drought was too mean even for poison ivy. Dr. Weaver states that "Long-established vines, two inches in diameter, bore wilted leaves even in the shade in early morning from the crown to the base of the supporting tree."

Science News Letter, March 16, 1935

PALEONTOLOGY

Postoffice "Pork" Dug Up In St. Louis

POSTOFFICE "pork" discoveries have been dug up in St. Louis; but for once they need not cause Jim Farley a headache. They date back to a considerably previous administration.

They consist, in cold fact, of the jawbones and tusks of an Ice Age peccary, a pig-like animal, excavated in the course of erecting a new postoffice building at St. Louis, Mo. At the Washington University department of geology, they were identified as belonging to the species *Platygonus leptorhinus*, a giant relative of existing peccaries.

Science News Letter, March 16, 1935

ASTRONOMY

Nova Herculis May Break Stellar Endurance Record

A STELLAR endurance record is in the making as scientists peer at the exploded star Nova Herculis which first flashed into brilliance just before Christmas. If the star will stay in sight for one day more than six months it will break the present record held by the Nova of 1891.

Nova Herculis has a good chance of breaking the nova record according to Leon Campbell of Harvard College Observatory.

"Since its discovery last December 13," said Mr. Campbell, "the star has acted in an unusual way for a nova. It has sustained an exceptional brilliance for a long period. The only nova I know that can be compared with it is the nova of 1891 which lasted six months. Nova Herculis has an even chance to break that record.

"After rising to peak brilliance, it began its normal decline but stopped falling and held a fairly steady level of about two and one half magnitudes. There was a sharp drop in brilliance at the end of January but the star has since recovered."

Science News Letter, March 16, 1935

ZOOLOGY

House Cats Turn Wild; Prey On Desert Rodents

TAME cats gone wild have become a problem in Death Valley. These animals, once pets at the Furnace Creek Ranch, multiplied as is the way of cats and spread out into the mesquite thickets adjoining the ranch. Reverting to the primitive, they have become quite wild and to some extent have replaced the native meat-eating animals, particularly the little desert kit fox.

The especial problem involved in these cats gone wild is their liking for native rodents, which, because of abundance of shelter, food, and water, live largely in the mesquite thicket. Cottontail rabbits, wood rats, antelope ground squirrels, and kangaroo rats, as well as Gambel quail, all fall prey to these feral house cats.

Control of the "wild cats" now is being planned by the National Park Service of the Department of the Interior, which has authority over the Death Valley National Monument.

Science News Letter, March 16, 1935

PSYCHOLOGY

First Vision

Psychologist Has Made a Study of How the World Looks to Those Who Have Always Been Blind

By MARJORIE VAN DE WATER

SUPPOSE you had been blind from birth. Suppose that the rich variety of colors that you see in nature, in dress, and in familiar household objects were merely names to you; that all forms were strange, and movements novel to your sight.

Can you picture to yourself just how they would look to you when your sight was restored? Would you admire the sights you now find beautiful? Would you be able to distinguish a pencil from a fork? Would you be attracted toward a red hat or repelled by a red apple?

Some few people have had just this strange experience. Born with cataracts on their eyes that prevented all vision, and even in some cases excluded all light, they were operated on when they were grown up and as adults had the confusing experience that confronts every newborn baby—looking on the world for the first time.

Now a psychologist, Dr. Wayne Dennis of the University of Virginia, struck by the dramatic quality of their experiences and with the value they would have in indicating just what aspects of our vision are "natural" or unlearned and what are acquired through practice in seeing, has searched through dusty books on medicine and accounts in journals old and new for the stories of such cases. He has summarized what he found in a report to the *Journal of Social Psychology*.

Learning to Look

Did it ever occur to you that your ability to train your eyes on the object that you wish to see is something that you have learned as a result of experience? Observation of these persons with newly acquired vision indicates that it is not an ability that just "comes naturally" along with the blessing of sight. Those individuals whose eyes were thinly obscured by the cataracts so that they were able to tell light from darkness had learned in their handicapped state to turn their heads toward the source of light. These persons were able without difficulty to turn their eyes toward any object they wished to observe. But others who had lived in total darkness had to learn how. They were puzzled as you might be in trying to watch a moving object reflected at a peculiar angle in a mirror. They had to turn their heads in first one direction and then another until the object was directly seen.

Distance is another baffling matter to those with new vision. Objects at a considerable distance are groped for close to the face, reminding the observer of the confident way in which a baby will reach out and try to clasp the shining moon.

A boy given his sight for the first time at the age of 13, thought that all the objects he could see must be brushing against his eyes in the same way that the things he felt must touch his skin. Another patient, a man, went up a flight of stairs two steps at a time without noticing what he was doing; others constantly were inclined to step too high when walking with their eyes open.

World is Bewildering

Perhaps you think that the shape and texture of objects look just about as they feel. That is only so because of your long association of the sight of things with their feel in your hand. Those to whom vision is a new experience look upon a bewildering world of unrecognizable objects. They have no notion of what anything might be. Even the simple form of an orange can not be identified until it can be touched. This is very confusing to the patient, and sometimes depressing or discouraging as well.

The thirteen-year-old boy started out, just as a child would, by asking of each object, "What is it?" He would stare long at it, trying to fix its appearance in his mind so that he should know it when he saw it again. He would thus learn—and forget—what seemed to him to be thousands of objects in a day. One day he discovered that he had forgotten which was the cat and which was the dog. He picked up the cat and held her, recognized her by feeling and then looked at her steadfastly, at last setting her down with, "So, puss, I shall know you another time."

Faces are not easily recognized by those with newly acquired vision. It was three days before one patient noticed the nose on her brother's face. Even after months of vision, only the most intimate familiars are known "by sight."

Colors seemed to be immediately distinguished by these persons, and the names for them readily learned. In fact colors, in some cases at least, made more impression on the patients than they would on a person accustomed to vision. One woman wanted to throw away all her dresses because they seemed to her too gaudy.

What the individual with new-found vision considers beautiful or repulsive is sometimes incomprehensible to those who have long seen. And, indeed, there does not seem to be any agree-

COULD YOU NAME THIS BIRD?

To the person who has never before seen, even the common dog and cat look as strange as this creature does to us. It is a mythical bird described in an old book, "Curious Creatures in Zoology."

ment of tastes among those just given sight.

Some expressed a strong preference for the color yellow. Yet another patient, a man of 30, said that when he first saw the color yellow it made him positively ill. One patient, a boy of 17, said that the human face pleased him more than any other object presented to view. Contrasted with this feeling is that of the woman of 22 who said that human faces were repulsive and that the mouths were like black holes.

Great was the disillusionment and disappointment when it was discovered that the most loved persons were not the most pleasing to the new-found sight. Or when things that had been pleasing to the touch, taste, or hearing, were not found good to look upon.

The woman to whom human faces were repulsive also reported an unhappy experience with her food.

"I could not bring myself to eat anything but milk, mashed potatoes or bread—they looked clean, but toast or meat or eggs looked dirty and disgusting," she said. "I could not eat tomatoes, beets or roast beef, of which I had been very fond—they were so red and hard and the looks of them sickened me."

This tendency of "eating with the eyes" is not one confined to those unaccustomed to sight, one is reminded, however. Flour and bread makers find that their products sell much better when they are bleached to a pleasing white, even though brown is a natural color for flour and brown bread just as nourishing as the snowy white. Perhaps this is because white is associated in the mind with cleanliness and purity, and dark colors with dirt or coarseness.

Time and good flavor have reconciled your eyes to the brown of turkey and gravy and mince or pumpkin pie, but to the newly seeing the color of these treats comes as a distinct shock. One woman also was disgusted when she saw someone drinking port wine. She explained, "It is dark, and looks to me very ugly."

One woman said that the most beautiful thing she looked upon during her first few days of vision was the clear blue sky above. On her first walk out of doors, it was this glorious sight that first attracted her attention.

"It is the prettiest thing I have ever seen yet," she commented. "And equally pretty every time I turn around and look at it."

Physiologists have long known that the image made on your eye by the objects you look at is turned upside down by the process. Yet no one ever sees things that way. Somehow the brain is able to correct the error made by your eyes and you perceive the objects as they really are. not as your eyes pick up the image.

Psychologists are consequently interested in finding out just how the correction is made possible. Do we learn to see things right side up after reaching and otherwise checking our vision against other senses and finding that the floor is really down and the ceiling up?

Apparently not. It seems natural for this correction to be made, for us to see things as they actually are. The cases of late vision did not report being troubled with the nightmare of an upside down universe.

Seeing Right Side Up

To prove that the images were actually perceived as right side up, one woman was shown a figure drawn in ink, one end of which was broad and one end narrow. She saw the positions of this drawing as they actually were presented to her, not inverted. She knew right away what was meant by above and below.

She also knew the meaning of such forms as round and square, both as they looked to her eyes and as they felt when she traced them with her fingers. Upon request she would trace the form of a square or circle with her finger and then would point to a similar form on the page before her.

Yet, although she could recognize such objects as a key and a pencil case perfectly with her eyes closed, just from the feel of them in her hands, when they were placed before her on the table she could not tell which was which. She was able to see that they were not alike, that they were different objects, but she could not reconcile the appearance of either with the image she had formed from touching them.

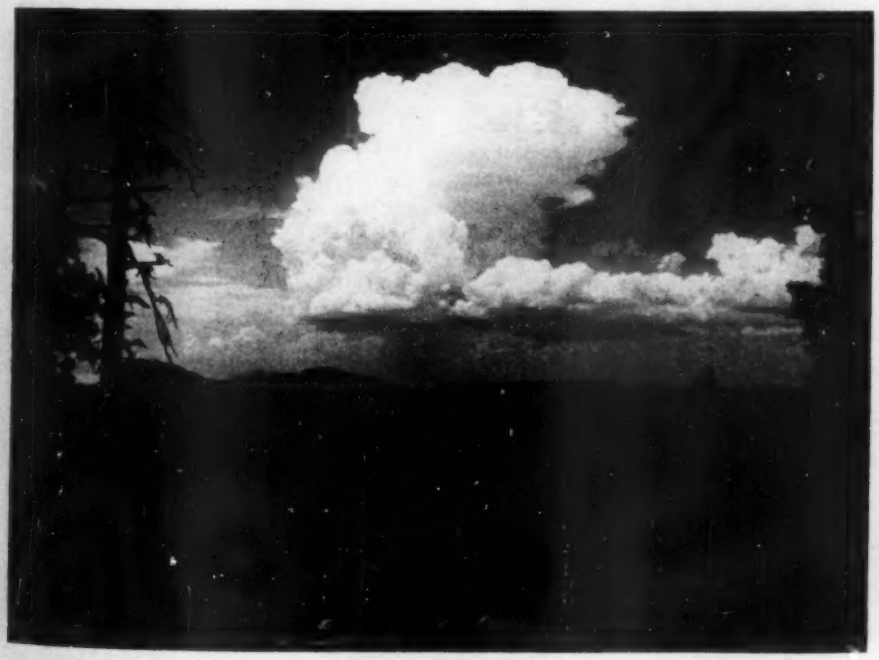
How did the subjects feel about seeing for the first time? Was it the glorious experience that seeing people imagine it must be, to look for the first time on the beauties of the world?

The Ecstacy of Vision

The answer is both yes and no. Some of the individuals were ecstatic over the experience. Of one man it is reported that: "With the exclamation, 'I can see!' he became a changed man. His one object in life was 'to see.'"

For others the experience lacked any particular interest. They had learned to get along without sight, and they were inclined to continue in ther old ways, not making use of their new ability to any great extent.

Some were appalled by the multitude of confusing sights about them. One woman is reported as refusing to look



HEAVEN'S BLUE

"It is the prettiest thing I have ever seen yet; and equally pretty every time I turn around and look at it." Thus a woman given her first glimpse of the beauties of the world described the clear blue sky, a sight often taken for granted by those with vision.

at an object shown her on the day following her operation saying, "that the light was offensive to her eye, and that she felt very stupid; meaning that she was much confused by the visible world thus for the first time opened to her."

The same woman reported later, "I see a great deal, if I could only tell what I do see; but surely I am very stupid." And "All that I can say is, that I am sure, from what I do see, a great change has taken place; but I cannot describe what I feel."

Fear of the sight of objects is another subject that interests the psychologist studying these cases. Are people born with an instinctive fear of the sight of certain shapes or things? The answer seems to be in the negative. None of the reports indicate that the subjects felt any particular fright upon looking for the first time at animals, or shadows, or any particular forms.

"We have failed to find good evidence that visual preferences, interests, or fears are unlearned or that reactions to distance are unlearned," Dr. Dennis concludes. "On the other hand, it may be urged that the negative results are not decisive for several reasons. The chief of these lies in the non-quantitative as well as in the incidental nature of the observations."

Further study of such cases and more detailed research from the psychological point of view is urged by Dr. Dennis.

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PHYSIOLOGY

Masculine Hair Bristling Due to Skin Thickness

WHEN Johnny answers parental reproaches about the tousled state of his hair with a despairing or even defiant "I can't help it; it won't lie flat," he is quite right. There is now scientific evidence for his contention, although neither he nor his parents are likely to know about it. (*Anatomical Record,* Feb. 25).

The general tendency of masculine hair to bristle, to stand on end and to resist steadfastly all efforts to flatten it is due at least in part to the thickness of skin on masculine heads. This appears to be the conclusion drawn from measurements made on nearly a hundred scalps by Elizabeth Upham and Walter Landauer of Storrs, Conn., Agriculture Experiment Station.

These scientists measured the thickness of top and under layers of skin and the angles between the hairs and skin. The thinner the top skin the smaller the angle, that is, the more sloping are the hairs, they found. Presumably, the more sloping the hairs, the easier it is to make them lie flat against the head, since that would seem to be their natural tendency. What is more, the Connecticut scientists found the thinner top skins on feminine scalps.

Hair angle and skin thickness are only part of the story. Even more important influences on the slope and direction of hair, the scientists believe, are the forces of stress acting on the skin during embryonic development. Which still gives Johnny a scientific "out." He really cannot help it if he was born with unruly hair.

The measurements also suggest a question of possibly considerable interest to Johnny's father. The average thickness of the top layer of skin, scientifically termed cutis, is smaller on female than male scalps, while the under layer, called subcutis, is thicker in women than in men, on the average.

Does the greater thickness of subcutis on feminine heads provide better anchorage for the hair and thus account for the lesser tendency to baldness among women? Or does the greater angle between hair and scalp in men make it easier for masculine hairs to fall out?

Unfortunately, science provides no answer at present. The Connecticut scientists do not even mention the cosmetically important matter of baldness. Still more unfortunately, science can probably provide no remedy for baldness even if the answer is yes. Finding a way to change the thickness of the skin layers on top of men's heads does seem beyond the ability of modern science, despite its many apparently miraculous achievements.

Science News Letter, March 16, 1935

New York State has been completely free from smallpox for over two years.

ARCHAEOLOGY

American Mummies Found Well Preserved

MUMMY bundles, removed from ancient graves in Peru, have been opened at the Field Museum of Natural History, revealing bodies of Americans well preserved since prehistoric times.

Desert-like dryness of the Peruvian coast is responsible for the state of the bodies, explained J. Eric Thompson, assistant curator of Central and South American archaeology.

Prehistoric Peruvian Indians did not usually preserve their dead by artificial devices, as Egyptians did, though resin was sometimes applied as preservative, and the viscera removed. In place of Egypt's mummy cases, South America had the custom of bundling a mummy in layer after layer of beautiful robes and shawls, with ornaments and personal possessions stuck in among the folds. A false head, added to the final shapeless pack, was usually a sign that the dead individual had been important, said Mr. Thompson.

Two 700-year old graves from the cemetery at Ancon, where the mummies were obtained, have been reproduced at the Museum, showing unopened mummy bundles surrounded by stores of food and household equipment. One grave contains women's work baskets, spindles, and silver ornaments.

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PALEOBOTANY

Infrared Light Useful In Study of Coal

INFRARED radiation, the "dark invisible light" that lies just below the lower end of the visible spectrum, has been found useful in the study of fossil leaves found in layers of coal, by Prof. John Walton, paleobotanist of Glasgow University. (*Nature,* Feb. 16).

Fern-like leaves in coal are usually studied by lifting them off, carefully spread out on some adhesive substance on a glass slide, which permits them to be handled under the microscope. Frequently they are so dark as to be quite opaque to both eye and camera with ordinary light. But to infrared radiation many of them are transparent, permitting fine details of structure to be photographed.

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FALSE HEAD FOR IMPORTANCE

A badge of importance is the false head which tops this mummy bundle in its funeral setting. This prehistoric American grave, reproduced at the Field Museum, brings the observer into the atmosphere of the cult of the dead as practised in the arid coast country of Peru, about 1250 A.D.

ANTHROPOLOGY

Age of Modern Man in Doubt With Failure to Find "Cradle"

THE CRADLE of modern man, *Homo sapiens,* is again in doubt, as British scientists renew their controversy over the age of African skeletons heretofore hailed as the oldest of modern humans and said to be some 60,000 years old.

A Scotch verdict of "not proven" is the set-back given to the antiquity of the African remains famous throughout the scientific world as "Kanjera Man." Prof. P. G. H. Boswell, geologist of the Imperial College of Science, announced in a letter (*Nature,* March 9) that he visited the region in Kenya, East Africa, where the skeletal remains were unearthed, and that he failed to find the site. It had been his intention to establish the geological age of the earth layer where the bones were deposited, geological evidence being one of the most convincing clues to the antiquity of such human remains.

The ancient human type called Kanjera Man, discovered by Dr. J. S. B. Leakey in 1932, consists of three skulls and skeletal fragments. These long-ago Africans walked erect and had other traits of modern humans. Dr. Leakey has maintained that the site is of the Middle Pleistocene period of geologic history. This would indicate that Africa had humans of modern racial type so early that Europeans were still of the shambling, stooped Neandertal race, a type which became obsolete and vanished from the earth.

A conference of the Royal Anthropological Institute was called in 1933 to hear Dr. Leakey report on his discoveries, and the conference gave a verdict that the young anthropologist had not exaggerated the age of the African remains. This opinion was based partly on the types of animal bones associated with the bones of man. Meanwhile, American anthropologists have remained cautiously skeptical, awaiting such confirmation as Prof. Boswell sought to obtain, and failed to find.

Prof. Boswell records that his failure to identify the site was due partly to errors connected with the exhibited photographs of the earth beds, and to the fact that deposits in the area had frequently been disturbed by slipping.

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PHYSICS

Chinese Paper Windows Admit More Ultraviolet

OCCIDENTAL visitors to the Orient may deplore the use of paper instead of glass in house windows, but new tests disclose that the paper is far more effective in transmitting the sun's rickets-preventing ultraviolet rays than the transparent glass windows of the western world. (See *SNL,* Mar. 2, p. 137).

First exact measurements on the ultraviolet penetration through window paper used in the homes of 300,000,000 people in China have just been reported (*Journal of the Optical Society of America,* March).

Tests by Ch'en Shang-Yi, Peiping Institute of Physics Research, and Meng Chao-Ying and William Band, of Yenching University, reveal that Chinese window paper passes nearly twice as much ultraviolet as the ordinary window glass used in American homes. When the paper is oiled, to make it rainproof, the transmission goes up another fifty per cent.

The glass commonly used in window panes cuts off the sun's rays just on the long wavelength side of the ultraviolet region which produces sunburn and tanning of the skin. And it cuts off, too, those rays which help prevent rickets.

In China, the scientists report, "the

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high transmission of ultraviolet through popular window papers has already suggested to local medical institutions the use of such window materials in their tuberculosis clinics; owing to the high cost of ultraviolet transmitting glasses manufactured in the West, paper permits a very great economy."

The extra transmission of window paper for the ultraviolet rays has been recognized in a rough way before. How much better was the paper has never been exactly known, however.

Physicians disagree on whether the apparently lower incidence of rickets among Oriental children is due to the use of the paper in the windows of their homes or to the difference in the type of clothing they wear.

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MEDICINE

Rare, Fatal Muscle Weakness Checked by New Treatment

CONQUEST of a rare and usually fatal disease of muscle weakness seems a little closer, with the announcement by physicians in London of a new method of treating it.

The remedy, a complex chemical having the trade name of Prostigmin, is not a cure and provides only temporary relief. It is important, medical scientists point out, not only because it gives greater relief of symptoms than anything so far tried, but because it attacks the seat of the disorder. Apparently it repairs the mechanism damaged by the disease and consequently should lead to an understanding of its cause and possibly eventually to its cure.

Results of Prostigmin treatment in seven cases of the disease have just been reported by Dr. E. A. Blake Pritchard of University College Hospital (*Lancet*, Feb. 23). Dr. Pritchard used this treatment following the report by Dr. M. B. Walker, of St. Alfege's Hospital, of unmistakable improvement she observed in three patients treated with Prostigmin.

Myasthenia gravis is characterized by gradual weakness of the muscles, although they do not waste away. The patient first notices that he is getting very tired. He sees double. Then he may have trouble in walking, or in lifting his arms or in grasping things. His jaw muscles become weaker, finally they may be so weak that he cannot chew. Various remedies have been tried, none, according to Dr. Pritchard, as successful as Prostigmin.

Dr. Pritchard found that his patients showed some improvement within the first five minutes after injection of Prostigmin and atropine. The latter drug is given to counteract the effects of Prostigmin on the heart. Within thirty minutes the patients improved to a degree far greater than when treated by any other method.

One young woman whose facial muscles had become so weak that she could not keep her mouth shut and had to support her jaw continuously with her hand, was able within a half hour to clench her teeth, blow out her cheeks with air, whistle and speak clearly. Unfortunately, the effect of the drug began to wear off within a few hours and was almost completely lost within eight hours.

The cause of this strange disease is not known but it seems to be due to interference or blocking of the messages from nerves to muscles. According to the theory, stimuli to muscles, the orders to go into action, are conveyed by the liberation at the nerve endings of a substance called acetylcholine. In myasthenia gravis the order for action is not delivered to the muscles, either because not enough acetylcholine is formed or else because it is destroyed too rapidly.

Prostigmin appears to correct this fault, probably by delaying the destruction of acetylcholine at the endings of the nerves that give orders for muscle action, the editor of *The Lancet* says in commenting on Dr. Pritchard's results.

The ultimate usefulness of Prostigmin as a remedy for myasthenia gravis is somewhat doubtful, since this same medical authority points out that "it has yet to be learned whether frequent injection of the drug does more good than harm to sufferers from this disorder." But because its effect is more than palliative in that it affects directly the mechanism that is out of order, Prostigmin may prove a most significant clue to final solution of the problem of what causes this disease and how it may be cured.

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ENGINEERING

Moscow Subway Now Ready for Opening

MOSCOW'S first subway is now ready for its official opening. A test train recently rolled over the seven miles of track.

To rush the job through 75,000 workmen were employed during 1934. What the 75,000 did in the two years was this:

Excavated 2,300,000 cubic meters of earth. Used 300,000 tons of cement; 580,000 cubic meters of timber; 90,000 tons of metal; and 960,000 cubic meters of rock, gravel and stone.

In the fifteen stations there are thirteen escalators in contrast to American subways where all but the deepest stations are "walk ups."

Scores of ancient and forgotten rivers and swamps were discovered as the track was pushed underground. Quicksand and water-saturated sands offered technical problems successfully solved by construction engineers. An additional twelve and one half miles of track are already planned.

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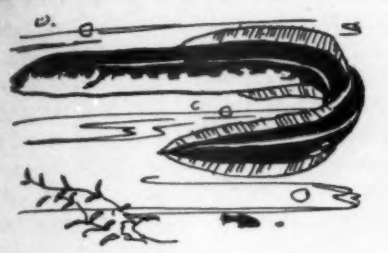
ICHTHYOLOGY

NATURE RAMBLINGS
by Frank Thone



"Irish Snakes"

GOOD St. Patrick, it is said, drove the snakes out of Ireland into the sea. The legend does not tell whether he invited the eels, those odd fish that look like snakes, to come up out of the sea, and make the Friday fast no fast at all. The legend does not tell this, but it might well be the case, for it is in Ireland's slow rivers that the finest eels in Europe may be speared.

Eels are more appreciated on the other side of the water than they are in America. That is a pity, for we have fine eels of our own, and though they are queer to look at and require a queer kind of fishing to catch, they are decidedly not at all queer to eat. And the virtual impossibility of obtaining smoked eel here is nothing short of an unrealized national misfortune.

Eels are odd fish in more than appearance only. Both European and American species have of the strangest life histories known throughout the whole animal kingdom. So obscure and hard to trace has it been, that it was only a few years ago that it was cleared up. Both European and American eels, when they are ready to breed, swim down the rivers to the sea and disappear. They migrate to the Atlantic Ocean depths near the West Indies, where they produce their eggs and then die. The young eels—elvers, they are called—look very little like eels during the first months of their lives, but gradually take on their typical elongate shape.

In the meantime they have started their long submarine trek toward their ancestral streams. How they ever travel those thousands of miles, with never a guide, and in the total darkness of the deep, no one can as yet hazard the wildest guess. But they do it somehow, taking several years for the journey, and at last come up the seaboard rivers with the rush of a living tide.

Science News Letter, March 16, 1935

RADIO

Tuesday, March 19, 4:30 p. m.

THE STORY OF MAN, by Henry Field, Field Museum of Natural History.

Tuesday, March 26, 4:30 p. m.

WHY TAKE THE SUN FOR GRANTED? by Dr. Donald M. Menzel, Harvard College Observatory.

In the Science Service series of radio addresses given by eminent scientists over the Columbia Broadcasting System.

ECONOMICS

Permanent Jobs Considered Obsolete

THE term "permanent job" has been discarded by the United States Employment Service as misleading, it is revealed in a new report by Dr. William H. Stead, director of the Division of Standards and Research of the Service.

When a job is definitely known to be of less than one month's duration, it is recorded as "temporary" in the records of the Employment Service.

If it is scheduled for more than one month, and presumed to be of long duration, it is set down as "regular."

"The term 'permanent,' characteristic of employment office records in the past, has been discarded as misleading in the light of present-day conditions," the report states.

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PALEONTOLOGY

Scientist Makes Study of "Seven Ages of a Fossil"

SHAKESPEARE'S famous Seven Ages of Man now have a fossil parallel, in the ages of a trilobite (a good many more than seven) worked out by Dr. G. Arthur Cooper, paleontologist of the Smithsonian Institution. (*Journal of Paleontology*).

Dr. Cooper has made a detailed study of ninety specimens of fossil trilobites, primitive relatives of crabs and crayfish, through all stages of their life development from infants a third of an inch long up to adults nearly four inches in length.

Science News Letter, March 16, 1935

New!

AN INTRODUCTORY COURSE IN

COLLEGE PHYSICS

By Newton Henry Black
Harvard University and Radcliffe College

An unusually clear and simple presentation, with an easy approach to the subject through simple machines makes this new text particularly useful for the first-year college course. Its primary purpose is to make the fundamentals of physics absolutely clear to the student. Applications of physics to modern life are described, wherever pertinent, to stimulate the student's interest. Hundreds of illustrations, a wealth of well-tested problems, and chapter summaries all contribute to the book's effectiveness as a text.

600 line drawings, 34 halftones, 12 woodcuts, 24 portraits, 1 4-color plate. Cloth, 714 pp. Cr. 8vo. $3.50.

MACMILLAN

•First Glances at New Books

Medicine

TUBERCULOSIS—Fred G. Holmes—*Appleton-Century,* 312 p., $2. In this volume a physician wth much experience in the care of the tuberculous chats with the patient or his family, telling them in simple language many things which they should know, answering questions they forgot to ask their own physicians, supplementing the explanations their physicians gave them.

Science News Letter, March 16, 1935

Medicine

INFANTILE PARALYSIS—George Draper—*Appleton-Century,* 167 p., $2. Much interesting information is here presented in simple, readable style. Parents who read the book will undoubtedly gain a clear picture of the disease and of what medical science can offer in the way of prevention and treatment.

Science News Letter, March 16, 1935

Nutrition

FOOD AND NUTRITION — *American Red Cross,* 40 p., 15c., 6 or more copies 10c each. Prepared for use in Red Cross food and nutrition courses, this pamphlet could be used in other similar classes and even by the intelligent housewife herself. The material is presented concisely, simply and in easy-to-read, direct style. There are several attractive illustrations and numerous helpful tables of food values.

Science News Letter, March 16, 1935

Dentistry

HEALTH DENTISTRY FOR THE COMMUNITY—Committee on Community Dental Service of the New York Tuberculosis and Health Association—*Univ. of Chicago Press,* 85 p., $1. The importance of including dental care in any plan for community health is emphasized in this book which surveys the present situation, both as to the need for dental care and the schemes for providing it in various communities.

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Navigation

SHIPS AND HOW THEY SAILED THE SEVEN SEAS—Hendrik Willem Van Loon—*Simon and Schuster,* 311 p., $3.00. The reader meditatively opening to the first page of this book is shaken into attention by finding that the author does not intend to praise seafaring as a jolly adventure. "The History of Navigation," writes Van Loon, "is a story of human martyrdom, and the torture chambers, in which those who defied the Gods of Space and Time were condemned to suffer their punishments, were called 'ships'!" To this atmosphere of gloom he recurs now and again through the book, but there is so much more to the narrative, so much interesting information and debunking of hoary myths, that the sea and ships still exert their traditional fascination to the last page. Van Loon's famous informal drawings illustrate the book.

Science News Letter, March 16, 1935

Photography

PHOTOGRAPHY FOR FUN—William M. Strong—*Leisure League of America,* 101 p., 25c. A compact, cleverly written book which makes one want to dig out the camera from the closet shelf and start taking pictures. It is grand for beginners because it provides a multitude of valuable hints without getting lost in technicalities.

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Anthropology—Sociology

ALASKA NATIVES, A SURVEY OF THEIR SOCIOLOGICAL AND EDUCATIONAL STATUS—H. Dewey Anderson and Walter Crosby Eells—*Stanford Univ.,* 472 p., $5. This large and impressive volume, including numerous tables, plates, maps and figures, surely provides a solid working basis for solving the problem of suitably educating a native group. The investigation of present conditions among Eskimo, Aleuts, and Indians of Alaska was made at the request of the U. S. Office of Education and was financed by a grant from the Carnegie Corporation.

Science News Letter, March 16, 1935

Library Science

THE PICTURE FILE IN SCHOOL, COLLEGE AND PUBLIC LIBRARIES—Norma Olin Ireland— *F. W. Faxon,* 89 p., $1.25. Suggestions for indexing, filing and building up a picture file with minimum effort and expense. An alphabetical arrangement of subject headings is used.

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Education

YEAR BOOK—*New York Institute for the Education of the Blind,* 43 p., not for sale, limited number of copies for distribution only to those "peculiarly and especially interested." This attractively illustrated account of activities at the Institute, to give only two examples, where blind girls cooked and served a formal dinner without mishap and a blind boy with only some sighted help successfully managed the Institute's poultry farm for a year, reads like a fairy tale rather than an annual report of an educational institution. The results at this Institute should be an inspiration to teachers of the blind and the blind themselves everywhere. It seems unfortunate that so few copies of the report are available.

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Flags

NATIONAL FLAGS WITH AIRCRAFT MARKINGS, CALENDAR OF DAYS FOR HOISTING NATIONAL FLAGS AND COLOR KEYS FOR READY IDENTIFICATION—E. H. Baxter—*Frederick Warne and Co.,* 172 p., $1.50. Current developments in flag lore up to 1934 are incorporated in this handbook. As it is a British publication, somewhat more space is given to the flags and badges of the British Empire than to other countries. There are four color plates, including two showing international aircraft signs.

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Psychology

AN INTRODUCTION TO APPLIED PSYCHOLOGY—C. R. Griffith—*Macmillan,* 679 p., $3.25. The applications of psychology discussed in this interesting text are of immediate practical importance to the individual. The first chapter tells what the psychologist has found out that will help in driving an automobile. Other chapters applying to the individual are followed by sections on psychology and social problems, law, medicine, education, industry, and art.

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